INTERCOLLEGIATE BROADCASTING SYSTEM

# FCC Proposal

REPRINTED FROM THE.....

FEDERAL REGISTER

VOLUME 19 NUMBER 77

*Wednesday, April 21, 1954*

## [ 47 CFR Part 15 ]

[Docket No. 9288]

### RESTRICTED AND INCIDENTAL RADIATION DEVICES

NOTICE OF FURTHER PROPOSED RULE MAKING

1. Notice is hereby given of further proposed rule making in the above entitled matter.

2. On April 13, 1949, the Commission issued a notice of proposed rule making in this Docket which proposed to amend Part 15 of the Commission's rules relating to restricted radiation devices. By order of July 29, 1949, this Docket was subdivided into four parts: Part A pertained to Incidental Radiation Devices; Parts B, C, and D of the Docket pertained to Restricted Radiation Devices.

3. The rules proposed in 1949 would have limited radiation from incidental radiation devices to 15 microvolts per meter at 100 feet or 15 microvolts per meter at a distance in feet equal to 157,000 divided by the frequency in kilocycles, whichever is greater. Comments addressed to this proposal expressed the opinion that comprehensive studies of the technical and economic aspects of regulation of incidental radiation devices were necessary before any rules governing this type of equipment were put into effect. Studies in this field directed to radio devices have developed limits which can be adopted at this time, whereas the studies of interference from electrical apparatus, such as power, lighting and ignition systems, are inconclusive. For this reason, the Commission proposes to classify radio receivers and some other forms of radio frequency generators as restricted radiation devices and to provide the class of incidental radiation devices for electrical apparatus in which the generation of radio frequency energy is unintentional. No specific radiation limits are proposed for incidental radiation devices but in the event that interference is caused to authorized radio services by operation of these devices, the operators of the devices will be required to take prompt action to eliminate the interference.

4. Subpart A of the proposed rules set forth below contains general provisions for the operation of restricted radiation devices. These provisions are in the form of minimum power and field intensity limitations, and will apply to all restricted radiation devices except insofar as specific provision for the operation of certain devices is contained in Subparts B and C. These limitations are set forth in terms of decibels above one microvolt per meter (dbu), and, merely for convenience, they are also set forth in terms of approximately equivalent microvolts per meter. Two sets of field intensity limitations are set forth in the proposed rules. The Commission proposes to place one set into effect as soon as these rules become effective, to be superseded by the second set on June 30, 1956. The limits to be placed in effect initially are based primarily on the Radio-Electronics Television Manufacturers Association's present radiation standards for television and FM receivers. Since it is not now known to what extent the RETMA standards can immediately be made applicable to all receivers, it is proposed to make the rules applicable now only to FM and TV receivers, and land mobile receivers above 25 Mc, which have been the source of the most serious interference problems caused by receivers. The rules would become applicable to all receivers manufactured after January 30, 1956.

5. The rules proposed by the Commission in 1949 would have limited the operation of carrier current devices to the frequencies 10–200 kc with a radiation limit of 15 microvolts per meter at a distance in feet of 157,000 divided by the frequency in kilocycles. Comments directed to those proposed rules generally opposed the adoption of any rules which would restrict the operation of such carrier current devices.

6. Subpart B of the rules now proposed contains provisions for the operation of carrier current systems. Such systems operating in the band 10–425 kc which meet the radiation requirements of Subpart A could be operated without certification. However, provision is made for such systems to be operated with greater radiation if they are certified in accordance with the procedure set forth in Subpart B.

7. Carrier current systems operating above 425 kc for the purpose of distributing programs to more than one receiver and which are installed after the effective date of these rules would have to be certified as meeting the requirements specifically applicable to them. Such systems which are in operation on the date these rules are made effective would have to comply with all applicable provisions by June 30, 1955, and, until that date, such systems operating in the band 425–1605 kc would continue to have to meet the existing radiation standard set forth in Part 15 of the rules. Moreover, all systems would immediately be governed by the provision of the rules which provides that the users or operators of restricted and incidental radiation devices which cause harmful interference to any authorized radio service shall promptly take such steps as may be necessary to eliminate such interference.

8. Subpart B of the proposed rules also provides that receivers shall be certified as complying with the applicable radiation limitations by the manufacturers thereof or by an appropriate certifying authority, or where this has not taken place, by the users of the receiver.

9. Subpart C of the proposed rules provides a procedure whereby restricted radiation devices which do not comply with the provisions of Subpart A or B can be operated pursuant to a license issued by the Commission. Such licenses would be granted by the Commission only if it found that the device in question could not meet the requirements of the rules, but that its operation would serve the public interest, convenience and necessity.

10. The Commission also wishes to point out that while various radiation limits are now being proposed, the Commission may find it necessary in the future to impose stricter radiation limits in light of new developments in the electronics field, and the necessity for providing adequate protection from harmful interference to authorized radio services.

11. These proposed rules are issued pursuant to the provisions of sections 4 (i), 301 and 303 (r) of the Communications Act of 1934, as amended.

12. Any interested person may file with the Commission on or before June 16, 1954, a statement or brief setting forth his comments in regard to the proposed amendments of the Commission's rules. Comments in reply to the original comments may be filed within 20 days from the last day for filing original comments. No additional comments may be filed unless (1) specifically requested by the Commission or (2) good causes for the filing of additional comments is established. The Commission will consider all comments before taking action in the matter, and if any comments are submitted which appear to warrant the holding of a hearing or oral argument, notice of the time and place of such hearing or oral argument will be given.

13. In accordance with the provisions of § 1.764 of the Commission's rules, an original and 14 copies of all statements, brief or comments filed shall be furnished to the Commission.

Adopted: April 14, 1954.

Released: April 15, 1954.

FEDERAL COMMUNICATIONS COMMISSION,
[SEAL] MARY JANE MORRIS,
*Secretary.*

## PROPOSED RULE MAKING

### PART 15—RESTRICTED AND INCIDENTAL RADIATION DEVICES

#### SUBPART A—GENERAL

§ 15.1 *Statement of basis and purpose.* (a) Section 301 of the Communications Act of 1934, as amended, provides for the control by the Federal Government over all the channels of interstate and foreign radio communication and further provides, in part, that no person shall use or operate apparatus for the transmission of energy, communications, or signals by radio when the effects of such operation extend beyond State lines or cause interference with the transmission or reception of energy, communications, or signals, of any interstate or foreign character by radio, except under and in accordance with the Communications Act and a license granted under the provisions of that act. Restricted and incidental radiation devices emit radio frequency energy on frequencies within the radio spectrum and constitute a serious source of interference to authorized radio communications services operating upon the channels of interstate and foreign communication unless precautions are taken which will prevent the creation of any substantial amount of such interference.

(b) The following rules and regulations are designed to have a twofold effect:

(1) They set forth the conditions under which the operation of equipment of the type covered by this part of the rules will not be considered to fall within the category of situations covered by the provisions of section 301 of the Communications Act, for which a station license is required as a condition of lawful operation.

(2) They provide a procedure for the licensing of devices covered by this part of the rules which are unable to meet the conditions set forth for operation without a license.

§ 15.2 *Definitions.* For the purpose of this part the following definitions shall be applicable:

(a) *Incidental radiation devices.* Devices which radiate radio frequency energy but which are not specifically designed to generate radio frequency energy.

(b) *Restricted radiation devices.* Devices which radiate radio frequency energy and are specifically designed to generate radio frequency energy (whether or not they are intended to be used for communications purposes) and which are not specifically covered in any other part of this title.

(c) *Carrier current systems.* Restricted radiation devices comprising systems for the transmission of intelligence, including control signals, principally by means of conducted radio frequency currents.

(d) *Harmful interference.* Any radiation or any induction which endangers the functioning of a radio navigation service or of a safety service or obstructs or repeatedly interrupts a radio service operating in accordance with the table of frequency allocations contained in Part 2 of this subchapter whether or not such interference occurs within the normally recognized field intensity contours of the authorized station.

§ 15.3 *Operation of incidental radiation devices.* Until further order, all devices of this nature shall be governed solely by the requirements specified in § 15.6.

§ 15.4 *Operation of restricted radiation devices.* The operation of all Restricted Radiation Devices manufactured or installed after the effective date of this part shall be in accordance with the limitation [1] set forth in paragraphs (a) and (b) of this section except insofar as Subparts B and C of this part contain specific provisions for the operation of certain types of restricted radiation devices, in which event the operation of such devices shall be governed by those provisions of Subparts B and C of this part.

(a) The device shall not deliver more than the following amounts of power to an artificial load having electrical characteristics that provide maximum transfer of energy from the device to the load:

| Frequency | Power | |
|---|---|---|
| | db above 1 watt (dbw) | Approximate micromicrowatts |
| 10 kc–1600 kc | $20 \log_{10}\left(\frac{1600}{F_{kc}}\right)-77$ | $\left(\frac{1600}{F_{kc}}\right)^2 \times 20{,}000.$ |
| 1.6–27.5 Mc | −77 | 20,000. |

or

(b) The device shall not create an electromagnetic field in excess of the values shown in the following table: [2]

| Frequency | Distance | Immediately | | After June 30, 1956 | |
|---|---|---|---|---|---|
| | | Db above 1 uv/m (dbu) | Approximate uv/m | Db above 1 uv/m (dbu) [3] | Approximate uv/m |
| *Kilocycles* | *Feet* | | | | |
| 10–157 | 1,000 | $20 \log \frac{157}{F_{kc}}+23.5$ | $(157/F_{kc})\times 15$ | $20 \log \frac{157}{F_{kc}}+23.5$ | $(157/F_{kc})\times 15.$ |
| 157–1600 | 100 | $20 \log \frac{1570}{F_{kc}}+23.5$ | $(1570/F_{kc})\times 15$ | $20 \log \frac{1570}{F_{kc}}+23.5$ | $(1570/F_{kc})\times 15.$ |
| *Megacycles* | | | | | |
| 1.6–27.5 | 100 | 24 | 15 | 24 | 15 |
| 27.5–70 | 100 | 30 | 32 | 26 | 20 |
| 70–130 | 100 | 34 | 50 | 30 | 32 |
| 130–174 | 100 | [4] 34–44 | 50–150 | 30–38 | [4] 32–80 |
| 174–260 | 100 | 44 | 150 | 38 | 80 |
| 260–470 | 100 | [5] 44–54 | 150–500 | 38–46 | [5] 80–200 |
| 470–940 | 100 | 54 | 500 | 46 | 200 |
| 940–1700 | 100 | 58 | 800 | 52 | 400 |
| Above 1700 | 100 | 62 | 1260 | 56 | 630 |

[3] As an alternative to the provisions, the Commission is considering using the following formula for frequencies of 40 Mc and above:

$$E_{dbu}=20 \log_{10} F_{mc}-8$$

[4] Use linear interpolation between 50 and 150 microvolts per meter for frequencies between 130 and 174 Mc.
[5] Use linear interpolation between 150 and 500 microvolts per meter for frequencies between 260 and 470 Mc.

§ 15.5 *Information concerning apparatus.* Upon request by the Commission the owner or operator of any device which is required by the provisions of this part to be certified, shall promptly furnish the Commission with such information as may be requested concerning the operation of such equipment, including a copy of any field intensity measurements made by or for the user in determining that radiation complies with the limits specified in this part.

§ 15.6 *Interference from incidental and restricted radiation devices.* No incidental or restricted radiation device, irrespective of whether it otherwise operates in accordance with the provisions of this part, shall be operated in a manner which causes harmful interference to any licensed radio service. Where harmful interference is in fact caused by the operation of any such device its operation must cease immediately until the condition responsible for such interference has been eliminated.

[1] Prior to July 1, 1956, these limits shall not be applicable to radio receivers other than television and frequency modulation broadcast receivers and land mobile receivers above 25 Mc.

[2] Measured in accordance with, or equivalent to, applicable methods of the Institute of Radio Engineers.

SUBPART B—OPERATION OF RESTRICTED RADIATION DEVICES THAT REQUIRE CERTIFICATION.

§ 15.101 *Certification of equipment.* The owner or operator of a restricted radiation device which requires certification under this subpart shall have posted in the room in which such equipment is operated, a certificate of a competent engineer setting forth the general conditions under which such equipment should be operated and certifying that the equipment involved is capable of complying with the radiation limits set forth in this part as applicable to such equipment. The certification required by this section shall describe with certainty the equipment covered thereby and a brief but specific statement of the engineering tests upon which such certification is based and the results thereof.

§ 15.102 *Renewal of certification.* No regular renewal of certification is required. However, the certification required by § 15.101 shall be renewed for particular equipment by such date as the Commission may specify if the Commission has reason to believe that the operation of such equipment may be inconsistent with the provisions of this subpart or a source of interference to authorized radio services.

§ 15.103 *Carrier current system operating in the range 10–425 kc.* (a) Carrier current systems operating at frequencies between 10–425 kc may exceed the limit set forth in § 15.4: *Provided,* The system is certified in accordance with § 15.101: *And provided further,* That the field intensity shall not exceed 1,000 microvolts per meter for frequencies between 10 kc and 157 kc, and 250 microvolts per meter for frequencies between 157 kc and 425 kc at a distance greater than 1,000 feet from any point in the system, and that radiation at disances greater than 500 feet from any point in any carrier current system operating under the provisions of this section and located within the 50 uv/m contour of a cochannel authorized station, shall not exceed an intensity of 15 db below the prevailing field intensity of such cochannel station.

(b) As a precautionary measure to avoid interference to navigational service, carrier current operators should discuss proposed installations and changes in existing installations within the frequency bands allocated to the aeronautical and marine services with the field offices of the Civil Aeronautics Administration, the United States Coast Guard and the Federal Communications Commission.

(c) Carrier current systems that normally radiate for a period of less than one second duration at intervals of more than one minute shall not be subject to the field intensity limitation and certification requirements set forth in this part.

(d) Spurious and harmonic emissions from carrier current systems shall not be in excess of the values specified in § 15.4.

§ 15.104 *Carrier current systems operating above 425 kc.* (a) The following provisions shall be applicable after the effective date of this part to all carrier current systems which operate on frequencies between 425–1605 kc for the purpose of distributing programs to more than one broadcast receiver: *Provided, however,* That until June 30, 1955, existing carrier current systems in this band shall be required in the alternative to meet the radiation limit of 15 microvolts per meter at a distance from any radiating source of 157,000 feet divided by the frequency in kilocycles:

(1) Radiation shall not exceed an intensity of 40 uv/m at distances of 100 feet or more from any radiating source: *Provided, however,* That such radiation shall not exceed 15 uv/m at the border of the property exclusively under the control and for the exclusive use of the owner and operator of the system.[6]

(2) The carrier frequency on which the system operates shall be an odd multiple of 5 kc, and the system shall not deviate more than plus or minus 100 cycles from the carrier frequency.

(3) The system shall be certified in accordance with the provisions of § 15.101.

(b) Carrier current systems, including wired television distribution systems, used for the purpose of distributing programs to broadcast receivers at frequencies above 1600 kc, shall be certified in accordance with § 15.101. Such systems installed after the effective date of these rules shall not radiate in excess of 10 microvolts per meter at a distance of 10 feet or more from any point in the system. All existing systems shall comply with this limit after June 30, 1955. This subsection shall not be applicable to distribution systems whose operation is confined to a single building.

§ 15.105 *Certification of receivers above 25 Mc. (including FM and television broadcast receivers and land mobile receivers).* (a) Receivers which are required to meet the radiation limitations set forth in § 15.4 shall be certified as to their compliance with such requirements in accordance with the procedure set forth in § 15.101.

(b) The owners and operators of receivers need not themselves comply with the certification requirements of paragraph (a) of this section: *Provided,* That the manufacturers of such receivers or an appropriate certifying authority have certified that they are capable of operating within the radiation limits set forth in § 15.4, and the manufacturers have marked or identified each receiver accordingly.

[6] Where persons other than the owner or operator of the system control or have the use of a portion of the property in question, the radiation limit shall be 15 uv/m at the border of that portion of the property, unless such persons have agreed in the contract or agreement providing for their use or control to accept any interference from the system, or they have agreed in writing to the operation of the system.

§ 15.106 *Information and inspection.* (a) Upon request by the Commission the owner or operator of any restricted radiation device governed by this subpart shall promptly furnish the Commission with such information as may be requested concerning the operation of such equipment. The premises on which such devices are operated, and any certificate required hereby, shall be available for inspection by representatives of the Commission at all reasonable hours.

SUBPART C—OPERATION FOR WHICH A LICENSE IS REQUIRED

§ 15.201 *When a license is required.* No restricted radiation device which does not comply with Subparts A or B or this part shall be operated except pursuant to a station license issued by the Commission.

§ 15.202 *Showing required.* An authorization for the operation of a restricted radiation device may be granted upon proper application therefor in accordance with the provisions of this part and a showing that in the light of the following considerations the public interest, convenience, and necessity would be served by such a grant:

(a) The purpose for which the equipment sought to be licensed will be used.

(b) The reasons why the equipment involved cannot be operated in compliance with the provisions of this part for unlicensed operation.

(c) The nature and extent of interference that may be caused to authorized radio services by the operation of such equipment.

(d) The procedures that will be followed to eliminate promptly any actual interference to authorized radio services.

§ 15.203 *Filing of applications.* All applications for new station authorizations, or applications for modification or renewal of station authorizations shall be submitted to the Commission's offices at Washington, D. C. Each application shall be submitted in duplicate and one copy shall be signed under oath or affirmation by the applicant if the applicant be an individual, by any one of the partners if the applicant be a partnership, by an officer if the applicant be a corporation, or by a member who is an officer if the applicant be an unincorporated association. Each application shall contain full and complete information concerning the station location, proposed equipment, operating frequency, expected magnitude of the radiated field and all information required by § 15.202 or other sections of this part. (The precise form of the application will be specified at such time as this part may be finalized.)

§ 15.204 *Station license.* Each station license authorizing the operation of a restricted radiation device will be issued for such period as the Commission may specify after consideration of the facts in a particular case: *Provided, however,* That no license will be issued for a term in excess of 1 year. Such licenses shall be renewable upon application if

the Commission finds the renewal will be in the public interest. Each station license shall be non-transferable and if the equipment for which the license is issued passes from the possession of the licensee, for any reason whatsoever, the licensee shall notify the Commission thereof and, when possible, include in such notification the name and address of the recipient of the equipment. The original license shall be posted in the room in which the equipment is operated or attached to the equipment itself.

§ 15.205 *Operator requirements.* The operator requirements for stations licensed under this part will be determined and prescribed by the Commission after consideration of the application for station license.

§ 15.206 *Revocation of license.* Any license issued pursuant to this part may be revoked by the Commission for the reasons and in accordance with the procedure set forth in section 312 of the Communications Act and § 1.402 of this chapter.

§ 15.207 *Information and inspection.* Upon request by the Commission the owner or operator of any restricted radiation device governed by this subpart shall promptly furnish the Commission with such information as may be requested concerning the operation of such equipment. The premises on which such devices are operated, and any license required hereby shall be available for inspection by representatives of the Commission at all reasonable hours.

[F. R. Doc. 54-3001; Filed, Apr. 20, 1954; 8:50 a. m.]